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**Title:** Needs satisfaction in intergroup contact: A multi-national study of pathways toward social change

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## **Author Contributions**

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## **Abstract**

What role does intergroup contact play in promoting support for social change toward greater equality? Drawing on the needs-based model of reconciliation, we theorized that when inequality between groups is perceived as illegitimate, disadvantaged groups members will experience a need for empowerment and advantaged groups members a need for acceptance. When intergroup contact satisfies each group's needs, it should result in more mutual support for social change. Using four sets of survey data collected through the Zurich Intergroup Project in 23 countries, we tested several preregistered predictions derived from the above reasoning across a large variety of operationalizations. Two studies of disadvantaged groups ( $N_s=689$  ethnic minority members in Study 1 and 3,382 sexual/gender minorities in Study 2) support the hypothesis that, after accounting for the effects of intergroup contact and perceived illegitimacy, satisfying the need for empowerment (but not acceptance) during contact is positively related with support for social change. Two studies with advantaged groups ( $N_s=2,937$  ethnic majority members in Study 3 and 4,203 cis-heterosexual individuals in Study 4) showed that, after accounting for illegitimacy and intergroup contact, satisfying the need for acceptance (but also empowerment) is positively related with support for social change. Overall, these findings suggest that intergroup contact is compatible with efforts to promote social change when group-specific needs are met. Thus, to encourage support for social change among both disadvantaged and advantaged group members, it is essential that besides promoting mutual acceptance, intergroup contact interventions also give voice to and empower members of disadvantaged groups.

In the struggle for greater social equality, groups of differential status experience motivational ups and downs resulting from having contact with one another. Hostile and discriminatory treatment by advantaged group members (i.e., cases of negative contact) can be a motor of collective action as seen in the Black Lives Matter movement or Stonewall riots. Positive and harmonious intergroup contact, however, may draw attention away from ongoing injustice and reduce support for social change toward greater equality. This “irony of harmony” effect (see Dixon et al., 2007; Saguy et al., 2009) has provoked controversy about whether positive intergroup contact is incompatible with social change (e.g., Çakal et al., 2016; Çakal et al., 2011; Dixon et al., 2010; Dixon et al., 2012; Kamberi et al., 2017; Saguy, 2018; Tausch et al., 2015; Wright & Lubensky, 2009).

The Zurich Intergroup Project (Hässler et al., 2020) has recently performed a large-scale test of the association between intergroup contact and support for social change across multiple social contexts for both advantaged and disadvantaged groups, confirming that these ironic effects do occur. Specifically, whereas intergroup contact was positively associated with support for social change among members of advantaged groups, it was negatively associated with support for change among disadvantaged groups. In the present article, we address two new questions raised by this finding: “How can positive and intimate contact between groups occur without reducing disadvantaged group members’ support for social change? And how can support for social change be bolstered among disadvantaged group members without requiring negative contact experiences?” (Hässler et al., 2020, p. 6).

Previous research on “supportive contact” provides some leads. For example, positive intergroup contact does not seem to undermine disadvantaged group members’ collective action intentions if advantaged group members acknowledge existing injustice (e.g., Becker et al., 2013; see also Droogendyk, Louis, & Wright, 2016; Techakesari et al., 2017). In the present research, we sought to understand and integrate these findings into a more

comprehensive model that explains support for social change as a function of need satisfaction among members of disadvantaged and advantaged groups. A model linking social change motivation to the basic psychological needs for empowerment among disadvantaged group members and acceptance among advantaged group members is advantageous because it can address not only the role of disadvantaged, but also of advantaged group members in supporting social change.

The central assumption of the present research is that intergroup contact might promote support for social change among both members of disadvantaged and advantaged groups to the extent that key psychological needs of both groups are satisfied. Guided by the theoretical framework of the needs-based model (Nadler & Shnabel, 2015), we hypothesized that among disadvantaged group members, “empowering contact”, in which advantaged group members give voice to members of disadvantaged groups and value their competence, would be positively associated with support for social change. Among advantaged group members, we hypothesized that “accepting contact”, in which advantaged group members feel welcomed and perceived as moral by disadvantaged group members, would be positively associated with support for social change. To test our hypothesis, we used survey data from 11,211 participants from 23 countries and four populations (i.e., ethnic minorities, LGBTIQ+ individuals, ethnic majorities, cis-heterosexual individuals) collected through the Zurich Intergroup Project (ZIP; Hässler et al., 2020). We will now discuss the theoretical perspectives on which we base our predictions in greater detail.

### **Needs for Empowerment and Acceptance: Integrating Intergroup Contact with a Needs-Based Perspective**

The needs-based model of reconciliation builds on literature about social perception, according to which people judge social targets along two fundamental psychological dimensions (Abele & Wojciszke, 2013). One dimension is the *agency* dimension,

representing constructs such as competence, respect, strength, influence, and self-determination. The other dimension is the *moral-social* (or communion) dimension, representing constructs such as warmth, sociability, trustworthiness and morality (see also the stereotype content model, which uses the terms “competence” and “warmth” to denote these dimensions; Fiske et al., 2007). The needs-based model argues that conflict threatens group members’ identities in an asymmetrical manner. Members of victimized groups experience threat to their agentic identity, namely, to their group’s respect, perceived competence, and ability to control its outcomes. Consequently, they experience a heightened need for empowerment; i.e., they wish to restore their group’s identity as agentic and competent. Members of perpetrating groups, by contrast, experience threat to their group’s moral-social identity. Because social exclusion is the sanction imposed upon those who violate the moral standards of their community (Tavuchis, 1991), they experience a heightened need for moral-social acceptance. The needs-based model further argues that addressing victim and perpetrator group members’ respective needs for empowerment and acceptance should increase their readiness to reconcile with each other.

Whereas earlier research supported the model’s predictions in contexts of direct intergroup violence with clear-cut victim and perpetrator roles (e.g., the Holocaust; Shnabel et al., 2009) subsequent research applied the model to contexts of structural inequality (Aydin et al., 2019a; Hässler et al., 2019; Shnabel et al., 2013), assuming that the psychological needs of disadvantaged and advantaged group members should – under certain conditions – correspond to those of victims and perpetrators, respectively. This assumption was based on findings (for a review see Fiske et al., 2007) that members of disadvantaged groups are often the targets of discrimination and are stereotyped as incompetent, whereas advantaged group members may benefit from unearned advantages and are stereotyped as cold and bigoted (Vorauer et al., 1998). The needs-based model’s logic suggests that these distinct identity

threats should also lead to divergent psychological needs in contexts of structural inequalities, namely the need for empowerment among disadvantaged groups and the need for moral acceptance among advantaged groups.

Thus far, the effects of addressing disadvantaged and advantaged group members' respective needs for empowerment and acceptance in the context of structural inequalities have been directly examined in only one set of studies (Shnabel et al., 2013), which focused on the relations between students of universities with lower vs. higher status. Students from the low-status university were more willing to engage in support for social change (e.g., sign a petition or participate in a demonstration) following a competence (vs. warmth) affirming message. This finding is conceptually consistent with findings that expression of status-based respect by advantaged group members increases disadvantaged group members' support for social change (Glasford & Johnston, 2017). Students from the high-status university, by contrast, were more willing to engage in solidarity-based support for social change following the warmth (vs. competence) affirming message. Accumulating evidence suggests that when advantaged group members feel that they are blamed for enjoying unearned privilege or for being prejudiced and racist, it leads to defensive responses (e.g., competition over the victim status, Sullivan et al., 2012) and reduced support for change toward equality (Saguy et al., 2013). Hence, affirming advantaged group members' moral identity could be expected to enhance their support for collective action and social change.

While Shnabel et al.'s (2013) studies provided initial evidence for the hypothesis that addressing disadvantaged and advantaged group members' respective needs for empowerment and acceptance can increase support for change toward equality in both groups, these studies used relatively artificial lab settings, in which participants referred to their identity as students (which is probably less central to their self-concepts than their ethnic or sexual/gender identity—examined in the present research). Further, in this prior



work, there was no direct contact with outgroup members, therefore the studies were not able to capture the complexity of communication in real-life intergroup contact. The goal of the present research is to integrate research on intergroup contact with the needs-based model by directly examining, for the first time, whether “empowering” and “accepting” real-life intergroup contact is associated with disadvantaged and advantaged group members’ support for social change toward greater equality.

Identifying what type of intergroup contact has the potential to increase support for social change is important for preventing “the irony of harmony” effect among disadvantaged group members. Disadvantaged group members are typically motivated not only to improve their group’s conditions, but also to preserve intergroup cooperation and avoid a direct, highly costly conflict (Jackman, 1994). It is therefore essential to shed light on whether and how they can jointly pursue the goals of harmony and justice through intergroup contact. As for advantaged group members, although intergroup contact with the disadvantaged is positively associated with their support for social change (Hässler et al., 2020), this effect might fail to fully materialize under certain conditions. For example, when advantaged group members’ need for acceptance remains unsatisfied, they may disengage from the outgroup (Ditlmann et al., 2017). It is therefore important to establish what type of intergroup contact (empowering vs. accepting) is most likely to augment support for change toward equality among which groups (disadvantaged vs. advantaged).

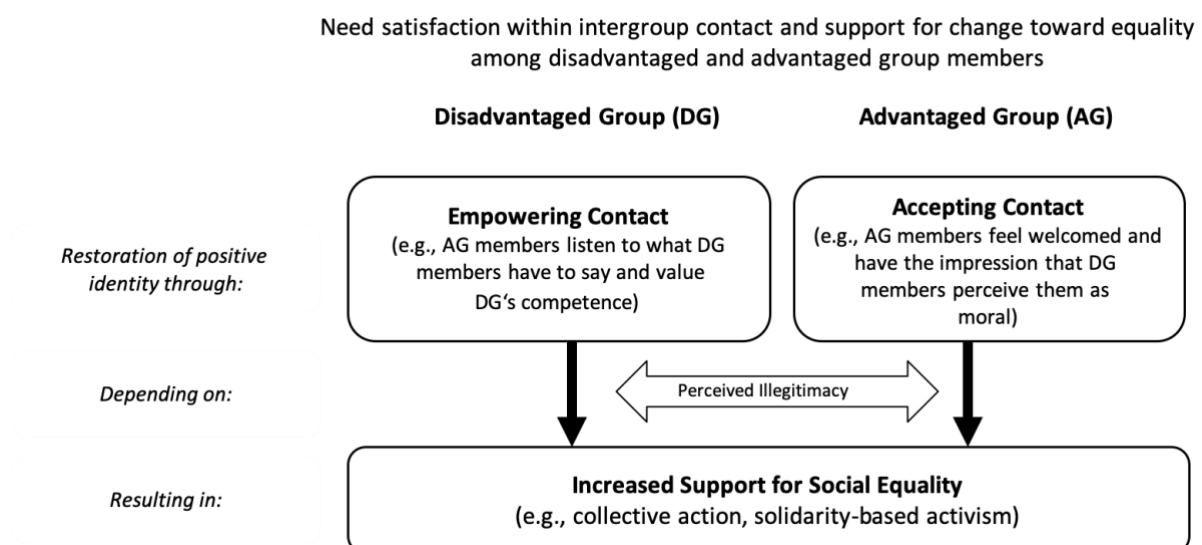
### **The Moderating Role of Perceived Illegitimacy**

In the needs-based model, the assumption that the psychological needs of disadvantaged and advantaged group members correspond to those of victim and perpetrator group members is conditional on group members perceiving disparities between their groups as illegitimate (Shnabel & Ullrich, 2013). People, however, might not always perceive group-based disparities to be illegitimate, because structural inequalities are typically characterized

by ambiguity with regard to the advantaged group’s culpability (Galtung, 1969). Members of both disadvantaged and advantaged groups might legitimize and defend rather than challenge the status quo of group-based inequality (Jost et al., 2004; Leach et al., 2002; Major, 1994; Tajfel & Turner, 1979).

Prior research (Aydin et al., 2019a; Hässler et al., 2019; Siem et al., 2013; see also Aydin et al., 2019b) has shown that legitimacy perceptions typically moderate disadvantaged and advantaged group members’ needs for empowerment and acceptance, such that the higher the perceived illegitimacy, the stronger the needs. However, no research to date has examined whether and how legitimacy perceptions moderate responses to intergroup contact that addresses these needs. Based on the needs-based model’s logic, we hypothesized that the positive effects of “empowering” and “accepting” contact on disadvantaged and advantaged group members’ support for social change should be stronger for individuals who perceive existing group-based disparities as more illegitimate (see Figure 1).

*Figure 1.* Conceptual model.



## Outline of Hypotheses

First of all, we expected to confirm the patterns previously observed by Hässler et al. (2020) such that intergroup contact would be negatively associated with support for change among the disadvantaged (*Hypothesis 1a*) and positively among the advantaged (*Hypothesis 1b*). The test of Hypotheses 1a and 1b differs from the previously reported bivariate correlation between intergroup contact and support for social change (Hässler et al., 2020) because in the present research, we simultaneously examined the effects of intergroup contact, need satisfaction (empowerment or acceptance), perceived illegitimacy, and their interaction terms (see Figure 2). Consequently, when testing Hypotheses 1a and 1b, we assessed the independent effect of intergroup contact on support for social change over and above these other variables and their interactions.

The main novel hypothesis derived from the conceptual model guiding the present research (see Figure 1) concerns the association between need-satisfying contact and support for social change:

*For disadvantaged group members, the extent to which intergroup contact satisfies the need for empowerment should be associated with higher support for social change (Hypothesis 2a);*

*For advantaged group members, the extent to which intergroup contact satisfies the need for acceptance should be associated with higher support for social change. (Hypothesis 2b).*

The key contribution of the present study is to assess the independent effect of group-specific need satisfaction (empowerment among disadvantaged group members, acceptance among advantaged group members) on support for social change over and above the previously reported effect of intergroup contact per se (Hässler et al., 2020). We therefore

tested the effects of need-satisfaction on support for social change while controlling for the effect on intergroup contact.

In addition to testing the additive effects of intergroup contact and needs satisfaction (specified, respectively, in *Hypotheses 1 and 2*), we expected them to interact in predicting support for social change. That is, the negative effect of intergroup contact on disadvantaged group members' support for change should become less negative (or even positive) when intergroup contact is experienced as empowering (*Hypothesis 3a*), whereas the positive effect of intergroup contact on advantaged group members' support for change should become even more positive to the extent that the intergroup contact is experienced as accepting (*Hypothesis 3b*).

Further, consistent with our theorizing about the moderating role of legitimacy perceptions, we expected the effect of need satisfaction on support for social change (specified in *Hypotheses 2a and 2b*) to be moderated by perceived illegitimacy. More specifically, we expected the link between empowering contact and support for change among disadvantaged group members to be stronger for those who perceive high illegitimacy (*Hypotheses 4a*). Accordingly, we expected the link between accepting contact and support for change among advantaged group members to be stronger for those who perceive high illegitimacy (*Hypotheses 4b*).

Finally, we expected a three-way interaction between intergroup contact, needs satisfaction, and perceived illegitimacy on support for social change. That is, we expected that feeling empowered would attenuate the negative effect of intergroup contact on support for change especially among disadvantaged group members who perceive the status quo as illegitimate (*Hypotheses 5a*). Correspondingly, we expected that feeling accepted would strengthen the positive effect of intergroup contact on support for change especially among advantaged group members who perceive the status quo as illegitimate (*Hypotheses 5b*).

We preregistered (20 October 2016) all five hypotheses, schematically depicted in Figure 2, as well as our analytic strategy (see <https://osf.io/6hfcu/files/>).

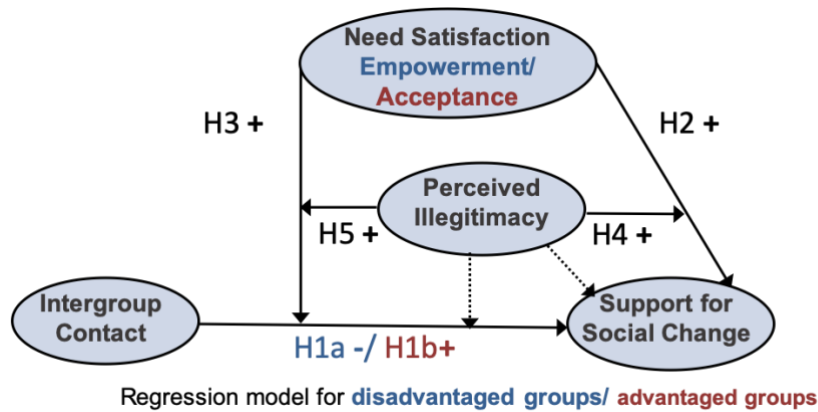


Figure 2. Overview of the regression model underlying all a priori hypotheses.

In addition to the preregistered hypotheses, we also tested the effects of intergroup contact satisfying the “other” less group-relevant need. That is, for disadvantaged group members, we tested the effect of acceptance, and its two- and three-way interactions with intergroup contact and legitimacy, on support for change toward equality. For advantaged group members, we tested the effect of empowerment and its interactions with intergroup contact and legitimacy on support for change. The purpose of these additional analyses was to explore the boundary conditions of the need satisfaction effects, by testing whether they are specific to the needs proposed by the model.

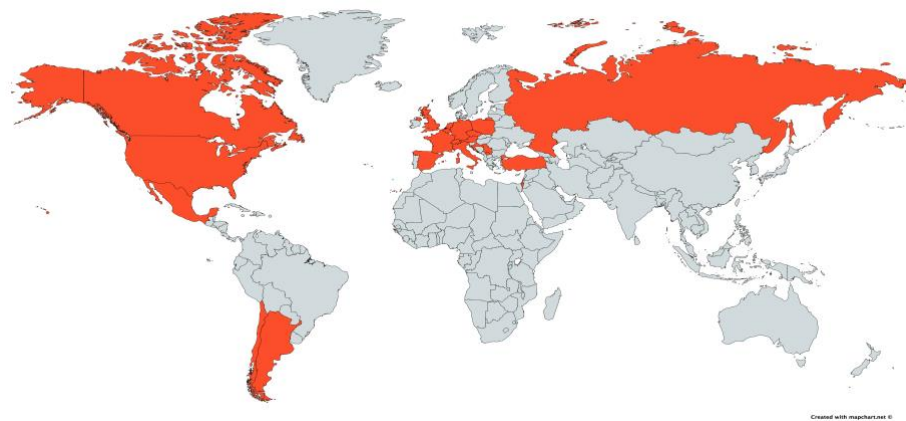
Finally, our model includes a main effect of perceived illegitimacy on support for social change as well as an interaction effect of perceived illegitimacy and intergroup contact (see dotted arrows in Figure 2) mainly to satisfy the statistical requirement of including the components of higher-order interactions. However, it should be noted that the main effect of perceived illegitimacy is also theoretically compelling in the context of research on collective

action (e.g., Van Stekelenburg & Klandermans, 2013). Thus, in the present research, perceived illegitimacy also serves as an important control variable.

### **The Present Research: Samples and Analytic Approach**

We tested our model using survey data from the Zurich Intergroup Project (ZIP, Hässler et al., 2020), which has several desirable features that help to maximize the generalizability of results. First, data were collected in 23 different countries (Figure 3 illustrates the geographical areas of the countries in which the minimum sample size of 100 participants was reached). Second, each construct was operationalized with multiple measures to recognize that (i) intergroup contact can differ in its frequency, intimacy, and valence, (ii) needs can be satisfied at the individual or group-level, (iii) perceived illegitimacy can be assessed directly or more indirectly as system-justifying beliefs, and (iv) different behaviors might underlie efforts to achieve social change. This addressed a limitation of past research: So far, different researchers had been using different measures to tap similar theoretical constructs, making comparisons difficult. Third, the project surveyed members of disadvantaged and advantaged groups in two rather dissimilar contexts, allowing for internal replications. More specifically, Study 1 tested the hypotheses pertaining to disadvantaged groups (*Hypotheses 1a-5a*) among members of ethnic, racial, or religious minority groups that are disadvantaged in the countries in which data were collected (e.g., Bosniaks in Serbia; People of Color in the United States; indigenous people in Chile; Muslims in the Netherlands). For the sake of brevity and clarity we refer to the disadvantaged groups examined in Study 1 as “ethnic minorities”. Study 2 tested the same set of hypotheses among LGBTIQ+ individuals (i.e., individuals identifying as lesbian, gay, bisexual, trans, intersex, queer, or other sexual and gender minorities) who, despite some progress toward equality, still suffer from structural inequality in practically every country in the world (OHCHR, 2015; Mendos, 2019). An analogous rationale guided our decision to test the hypotheses

pertaining to advantaged groups (*Hypotheses 1b-5b*) among members of advantaged ethnic, racial, or religious majority groups in the countries in which data were collected in Study 3 (e.g., Serbs in Serbia; White people in the United States; non-indigenous people in Chile; Christians in the Netherlands; we refer to these groups as “ethnic majorities”), and among cis-heterosexual individuals (heterosexual individuals whose gender identity corresponds to their assigned sex) in Study 4.



*Figure 3.* Countries of data collection.

In addition to using a large and heterogeneous data set, we also followed guidelines for best practices for open research to increase the credibility and transparency of our results (Nosek et al., 2015). We preregistered the postulated regression model underlying our hypotheses and our analytic strategy which relies on *specification curve analysis* (Simonsohn et al., 2019)—a novel approach to data analysis, designed to mitigate the problem that empirical results in social psychological research often hinge on decisions regarding the inclusion or exclusion of measures and datapoints that are defensible but also arbitrary and motivated. The benefit of specification curve analysis is that it allows researchers to examine all possible specifications and learn upon which of them (if any) the conclusion hinges (rather than pre-committing to one vs. another valid analysis). For example, it can tell us whether a particular measure of intergroup contact yields stronger effects than others, or whether the

exclusion of outliers substantially changes the obtained patterns of results. Thus, beyond a general conclusion about the overall null hypothesis based on the joint significance test, which constitutes the confirmatory part of our research, we used specification curve analysis to systematically assess what kind of operationalizations or analytic decisions produce smaller or larger effects (see Supplementary Materials).

In summary, the goal of the present research was to examine several new, theory-based predictions about when and why intergroup contact would be positively related to support for social change. When intergroup contact satisfies the disadvantaged group members' need for empowerment and the advantaged group members' need for acceptance at the individual or collective level, it should result in more mutual support for social change. We used survey data from the ethnic and LGBTIQ+ contexts collected through the ZIP (Hässler et al., 2020) in 23 countries. Using methods that allow for reproducible and generalizable conclusions, we tested our predictions across a total of 1,520 regression models, which varied the operationalization of each construct and the nature of data exclusions. All studies reported below followed a preregistered analysis plan stored along with the questionnaires, data, and code at: <https://osf.io/mdngf/>.

### **Study 1: Disadvantaged Ethnic Groups**

Study 1 tested our hypotheses among members of disadvantaged ethnic groups (see Table 1).

#### **Method**

##### ***Participants.***

We used a subsample of  $N = 689$  members of ethnic minorities from the ZIP dataset (Hässler et al., 2020) who reported having at least some intergroup contact with the respective majority group and for whose minority group there were at least 100 observations available. The sample size was determined by the anticipated number of total samples



(<https://osf.io/6hfcu/files/>). The subsample included 284 male, 402 female, 1 other participants (and 2 who did not respond to the question;  $M_{\text{age}} = 29.20$ ,  $SD_{\text{age}} = 11.09$ ).

Table 1

*Overview of Included Samples – Disadvantaged Ethnic Groups ( $N = 689$ ) and the Advantaged Group to Which They Referred*

Category	Country	$N_{\text{Disadvantaged Group}}$
Disadvantaged/ Advantaged		
Mapuche / Non-Indigenous	Chile	118
Peruvians / Chileans	Chile	127
Muslims / Non-Muslims	Germany	110
Serbs / Albanians	Kosovo	102
Asians / British	United Kingdom	126
Muslims / Non-Muslims	United States	106

### ***Measures.***

The final scales and items were assessed on a 7-point Likert scale (1 = *low values*, 7 = *high values*; see Supplementary Materials for the full list of items and anchors).

*Support for social change.* We used five different operationalizations of the construct support for social change: Two scales (based on Jost et al., 2012) measured *collective action* intentions, both *low cost* (e.g., “Signing an online/regular petition to support action against the unequal treatment of [disadvantaged group]”, Cronbach’s  $\alpha = .82$ ) and *high cost* (e.g., “Attending demonstrations, protests or rallies against the unequal treatment of [disadvantaged group]”, Cronbach’s  $\alpha = .89$ ). We also measured *support for empowering policies* (based on Shnabel et al., 2016; e.g., “Institutions of [respective country] should allocate more places to [disadvantaged group members] as a form of affirmative action”, Cronbach’s  $\alpha = .65$ ).

Finally, we collected two new measures reflecting important theoretical constructs in the literature on support for social change: *raising ingroup awareness of inequality* (Van Stekelenburg & Klandermans, 2013; e.g., “When I come into contact with ingroup members, we talk about injustices in society regarding [disadvantaged group]”, Cronbach’s alpha = .91) and *working in solidarity with the outgroup* (Droogendyk, Wright, et al., 2016; Subašić et al., 2008; e.g., “How willing are you to unite with [outgroup] to work for justice for [disadvantaged group]?”, Cronbach’s alpha = .89).

*Intergroup Contact.* We used five different operationalizations of the construct intergroup contact: (i) *Quantity of contact* (adapted from Voci & Hewstone, 2003; e.g., “How many [outgroup] people do you know, at least as acquaintances?”, Spearman-Brown coefficient = .60; note that for two-item scales we report the Spearman-Brown coefficient instead of Cronbach’s Alpha; see Eisinga et al., 2013), two measures of quality of contact, namely, (ii) *Positive contact* (adapted from Kelly & Breinlinger, 1995; Tropp & Brown, 2004; e.g., “When you interact with [outgroup], to what extent do you experience the following: The contact is friendly?”, Cronbach’s alpha = .83), and (iii) *Absence of negative contact* (adapted from Barlow et al., 2012; e.g., “When you interact with [outgroup], to what extent do you experience the following: The contact is unfriendly?” (reverse coded), Spearman-Brown coefficient = .77), (iv) *Number of outgroup friends* (based on Tropp & Pettigrew, 2005; single item “How many of your friends are [outgroup]?”), and (v) *Frequency of meeting outgroup friends* (Adapted from Tropp & Pettigrew, 2005; single item “How often do you meet your [outgroup] friends?”).

*Need Satisfaction.* For both needs, empowerment and acceptance, we developed measurements of the extent to which participants perceived the intergroup contact as satisfying the respective need both individually and at the group level. Making this distinction between individual level and group level need satisfaction is meaningful against

the background of the generalization problem in the intergroup contact literature (e.g., Hewstone & Brown, 1986; Pettigrew, 1998). When members of different groups have personalized contact, it is unclear to what extent the effects of contact generalize to the group level. Thus, *individual level empowerment* was measured with the items “I felt that [outgroup members] with whom I had contact listened to what I had to say” and “I felt that [outgroup members] with whom I had contact perceived me as competent and intelligent”, Spearman-Brown coefficient = .80. *Group level empowerment* was measured with the same items adapted to the group level: “I felt that [outgroup members] with whom I had contact listened to what [ingroup] had to say” and “I felt that [outgroup members] with whom I had contact perceived [ingroup] as competent and intelligent”, Spearman-Brown coefficient = .77. *Individual level acceptance* was measured with the items “I felt welcomed and accepted by [outgroup members] with whom I had contact” and “I felt that [outgroup members] with whom I had contact saw me as prejudiced or immoral” (reverse coded), Spearman-Brown coefficient = .43. *Group level acceptance* was measured with the same items adapted to the group level: “Contact with [outgroup members] left me with the impression that [ingroup] is welcomed and accepted by [outgroup]” and “Contact with [outgroup members] left me with the impression that [outgroup] see [ingroup] as prejudiced or immoral” (reverse coded), Spearman-Brown coefficient = .53.

Although the confirmatory factor analysis pointed to a two-factor solution (see below and in Supplemental Materials), the scales measuring satisfaction of the needs for empowerment and acceptance were strongly positively correlated (individual  $r = .60$  and group level  $r = .62$ ). In the interest of using only the portion of the variance that is theoretically relevant, we created residualized versions of these variables for the testing of our hypotheses. For example, when assessing the effects of empowering contact, we used the residuals of a regression in which acceptance predicted empowerment.

*Perceived illegitimacy.* The construct perceived illegitimacy was operationalized by (reverse coded) scales of *legitimacy of group differences* (Weber et al., 2002; e.g., “I think the advantages of [advantaged group] compared to [disadvantaged group] are legitimate”, Spearman-Brown coefficient = .78) and *system justification* (Jost & Kay, 2005; e.g., “The [respective country] society is set up so that [advantaged group] and [disadvantaged group] usually get what they deserve”, Cronbach’s alpha = .78).

*Attention Check.* To detect participants who respond to the questions without reading them, we also included two attention check items (adjusted from Oppenheimer et al., 2009); e.g., “When you have read this item, please select the second point on the scale (to the right of ‘Strongly disagree’).” Unfortunately, some participants who answered the questionnaire on their cell phones reported that the instructions were misleading (the display format was vertical for participants completing the questionnaire). This means that answers to the attention check items have unclear validity for a subset of participants. Participants who selected a wrong answer in at least one of the attention check items were classified as having failed the attention check (28.0% among ethnic minorities; 11.8% among all four populations).

### ***Analytic strategy.***

Data analyses proceeded in three steps (see Supplementary Materials for an overview of the analytic procedure).

*Data preparation.* As our data were collected in different countries and with regard to different ingroups and outgroups, we regressed the original items on the subsample identifier variable (a variable indicating which subsample a participant belonged to) to obtain residualized item scores. This was done to remove mean differences between subsamples and to ensure that we would test the postulated model at the level of individuals rather than at the level of subsamples or countries (item-level sample-mean residualization). Next, we used

confirmatory factor analyses to select the final set of items and scales as reported above (see Supplementary Materials).

*Model.* Our hypotheses refer to the coefficients of a multiple regression model of support for social change with the following predictor variables:

$$SSC_i = b_0 + b_1IC_i + b_2NS_i + b_3PI_i + b_4IC_i \times NS_i + b_5IC_i \times PI_i + b_6NS_i \times PI_i + b_7IC_i \times NS_i \times PI_i.$$

This model allows us to estimate the independent effects of intergroup contact (IC), need satisfaction (NS), and perceived illegitimacy (PI), as well as the interactive effects of these predictor variables up to the three-way interaction on support for social change (SSC). We z-transformed all variables before computing the interactions. Thus, the regression coefficients can be interpreted as standardized regression coefficients.

*Statistical Inference.* Recall that we used multiple operationalizations of each construct. The most systematic and transparent way of testing our hypotheses consists of repeatedly estimating the same statistical model using all 100 possible combinations of operationalizations, i.e., 5 (support for social change measures [i.e., low cost collective action, high cost collective action, support for empowering policies, raising awareness, working in solidarity])  $\times$  5 (intergroup contact measures [i.e., quantity, positive contact, negative contact, number of outgroup friends, frequency of meeting outgroup friends])  $\times$  2 (need satisfaction measures [i.e., individual level empowerment, group level empowerment])  $\times$  2 (perceived illegitimacy measures [i.e., system justification, legitimacy of group differences]). We also decided in advance that we would vary whether statistical outliers (with observations more extreme than three times the interquartile range away from the end of the box in Tukey's boxplot) and participants failing the attention check would be excluded or not. Combining the different possibilities of operationalizing the constructs and excluding participants, i.e., 2 (attention check failures [i.e., included, excluded])  $\times$  2 (outliers [i.e., included, excluded]), results in 400 opportunities for testing each hypothesis.

For each of the 400 hypothesis tests, we tested whether a given regression coefficient was significantly different from zero in the predicted direction (applying an alpha level of 5% and one-sided testing for preregistered hypotheses) or the non-predicted direction (applying an alpha level of 5% and two-sided testing). We then used the techniques developed by Simonsohn et al. (2019), namely, specification curve analysis, to test whether the number of significant results was greater than can be assumed to occur by chance. This involves a bootstrapping technique (see Supplementary Materials) which yields an overall  $p$ -value which we denote as  $p_{\text{overall}}$  (as opposed to the  $p$ -value we use to test coefficients in any given individual regression). When  $p_{\text{overall}}$  was less than .05, we rejected the global null hypothesis that the assumed effect does not exist for any possible combination of operationalizations and data exclusion criteria. We then used visualization techniques and meta-regression to understand how the results depend on operationalization and data exclusions (i.e., examine whether a particular measure of intergroup contact or support for change produced especially large negative effects, whether the exclusion or inclusion of outliers systematically affected the results, and so forth). For the sake of concision, we review the key findings in the Results section below and provide the complete results of these analyses in the Supplementary Materials. All steps of the specification curve analysis can be reproduced with the script Master\_Spec.R.

## **Results**

### ***Analyses with intergroup contact satisfying the need for empowerment.***

To test the hypotheses while varying operationalizations and data exclusions, we ran 400 regressions of support for social change on intergroup contact, satisfaction of the need for empowerment, perceived illegitimacy, and all two-way and three-way interactions among the predictor variables. A summary of the resulting coefficients is shown in Table 2. Note

that testing the same hypothesis in 400 different ways implies that we may observe results in the predicted direction *and* in the opposite direction.

We first confirmed that intergroup contact is negatively related with support for social change (Hypothesis 1a), in line with Hässler et al.'s (2020) findings. Confirming this effect was necessary because the current model differs from the model tested by Hässler and colleagues in two ways: it includes additional covariates and excludes participants who reported not having any intergroup contact at all, restricting the variance of intergroup contact. As can be seen in Table 2, consistent with Hässler et al.'s findings, 37% of the model specifications produced significantly negative coefficients, indicating that more intergroup contact was generally associated with less support for social change ( $p_{\text{overall}} < .001$ ). Nonetheless, as in Hässler et al., a non-trivial number of coefficients was significantly positive (11%;  $p_{\text{overall}} < .001$ ), such that more intergroup contact was associated with more support for change.

Table 2  
*Summary of Coefficients From 400 Regression Models Predicting Support for Social Change Among Disadvantaged Ethnic Groups (Study 1)*

H	Predicted Effect	Predictor Variable	Min (b)	Max (b)	Significantly negative results		Significantly positive results	
					%	$p_{\text{overall}}$	%	$p_{\text{overall}}$
1a	Negative	Intergroup Contact (C)	-.28	.18	<b>37%</b>	<b>&lt; .001</b>	11%	<b>&lt; .001</b>
2a	Positive	Empowerment (E)	-.14	.19	3%	.658	<b>25%</b>	<b>&lt; .001</b>
-	–	Illegitimacy (I)	-.06	.38	0%	1	60%	<b>&lt; .001</b>
3a	Positive	C x E	-.08	.13	0%	1	<b>12%</b>	<b>.015</b>
-	–	C x I	-.10	.09	2%	.925	1%	.958
4a	Positive	E x I	-.14	.08	14%	<b>&lt; .001</b>	<b>2%</b>	<b>.999</b>
5a	Positive	C x E x I	-.15	.13	13%	<b>&lt; .001</b>	<b>6%</b>	<b>.872</b>

*Note.* H = Hypothesis. Results shown in bold pertain to preregistered hypotheses and are based on one-tailed individual significance tests. All other results are based on two-tailed individual significance tests.

Further inspection of results using visualization and meta-regression available in the Supplementary Materials suggested that when intergroup contact was related to disadvantaged group members' increased support for change, it was typically in models in which the measure of this construct tapped into *willingness to work in solidarity* with the advantaged group toward greater equality.

Next, we tested our novel hypothesis that satisfaction of the need for empowerment would be related to more support for social change among disadvantaged ethnic groups (Hypothesis 2a). In line with this hypothesis, Table 2 reveals that 25% of the coefficients were significantly positive (which is unlikely to occur by chance,  $p_{\text{overall}} < .001$ ); this means that, 100 regressions yielded evidence that, above and beyond the known effects of intergroup contact, the more ethnic minorities reported their contact experiences to be empowering, the greater was their support for social change. Only 3% of the coefficients were significant in the opposite direction, which is consistent with chance levels ( $p_{\text{overall}} = .658$ ).

Importantly, we also found a positive effect of perceived illegitimacy on support for social change, which was obtained in 60% of the analyses ( $p_{\text{overall}} < .001$ ). This robust effect, which is consistent with previous research about the link between perceptions of injustice and support for social change (e.g., Van Zomeren et al., 2008; Jost et al., 2017), must be considered when interpreting the strength of the evidence regarding the effects of other variables. Specifically, after controlling for the influence of legitimacy, the variance in support for social change that can be explained by intergroup contact and need satisfaction is much smaller.

According to Hypothesis 3a, need satisfaction would interact with intergroup contact such that the effect of intergroup contact on support for social change would be less negative (or even positive), the higher the satisfaction of the need for empowerment during intergroup



contact. In line with this hypothesis, 12% of the interactions were significantly positive ( $p_{\text{overall}} = .015$ ) and none were significantly negative. The interaction between intergroup contact and illegitimacy perceptions on support for social change, which was entered merely as a statistical requirement for testing the theoretically relevant interactions, turned out to be non-significant (see Table 2).

Having obtained encouraging levels of support for our hypotheses regarding the positive effects of empowering contact on disadvantaged group members' support for social change, we next turn to evaluating Hypothesis 4a, that the effects of empowering contact should be stronger the higher the perceived illegitimacy. Inspection of Table 2 suggests that this was not the case. Both the interaction between need satisfaction (i.e., empowerment) and perceived illegitimacy and the three-way interaction between intergroup contact, empowerment, and perceived illegitimacy (Hypotheses 5a) were significantly negative in 14% and 13% of the regressions, respectively ( $p_{\text{overall}} < .001$ ), suggesting that contrary to expectations, the additive and interactive effects of need satisfaction (i.e., feeling empowered) might be smaller, the higher the perceived illegitimacy.

#### ***Analyses with intergroup contact satisfying the need for acceptance.***

In order to check on our assumption that empowerment is what matters for disadvantaged groups and not acceptance, we re-estimated the 400 regressions by replacing satisfaction of the need for empowerment with satisfaction of the need for acceptance, expecting to find weaker positive or negative effects on support for social change (see Supplementary Materials). The coefficients obtained for satisfaction of the need for acceptance ranged from  $-.29$  to  $.11$ . Only 4% of the coefficients were significantly positive ( $p_{\text{overall}} = .505$ ), and a majority of the coefficients (57%) were significantly negative ( $p_{\text{overall}} < .001$ ), mirroring the negative effect of intergroup contact on support for social change. Furthermore, there was no evidence that satisfaction of the need for acceptance buffers the

negative effect of intergroup contact ( $p_{\text{overall}} = .963$ ). Thus, in contrast to empowering contact, accepting contact was associated with disadvantaged group members' lesser, rather than greater, support for social change.

## Discussion

Study 1 used a diverse international sample of members of disadvantaged ethnic groups to test the incremental effect of need satisfaction, over and above the effects of intergroup contact and perceived illegitimacy on support for social change. Across a large variety of operationalizations, and consistent with our hypotheses, satisfaction of disadvantaged ethnic group members' need for empowerment was related to more support for social change, offsetting the negative effect of intergroup contact, and exerting a moderating effect, such that the negative effect of intergroup contact on support for social change was smaller, the more empowering the experiences of intergroup contact were reported to be. In other words, empowerment seemed to buffer against "the irony of harmony" effect (Saguy et al., 2009). Importantly, these results were specific to satisfaction of the need for empowerment: Repeating all analyses with a measure of satisfaction of the need for acceptance (rather than need for empowerment) produced a strikingly different set of results. Specifically, satisfaction of the need for acceptance consistently related to *less* support for social change in line with "the irony of harmony" effect and failed to moderate the effect of intergroup contact.

Notably, although the number of significant results among the 400 model tests was clearly larger than the number that can be expected to occur by chance, it was not particularly high in absolute terms. We reasoned that the large number of non-significant results might reflect relatively low statistical power, considering that the effects of need satisfaction compete with the robust effects of perceived illegitimacy (e.g., Van Zomeren et al., 2008; Jost et al., 2017) and intergroup contact (Hässler et al., 2020), reducing effect size. Thus, it

was important to seek to replicate the results with a larger sample. Furthermore, we obtained moderating effects of perceived illegitimacy that were unexpected in their direction (e.g., suggesting that the effect of empowerment would be smaller, the higher the perceived illegitimacy). In order to understand the extent to which the unexpected moderating effects of perceived illegitimacy are robust or are perhaps due to the idiosyncratic mix of disadvantaged groups inherent to this convenience sample, we focused on groups that are disadvantaged along a common dimension in Study 2.

### **Study 2: LGBTIQ+ Individuals**

In Study 2 we tested the same hypotheses as in Study 1 among members of groups that are disadvantaged based on their sexual orientation and/or gender identity. Although the conditions of LGBTIQ+ individuals have improved in many countries in recent decades (e.g., more positive attitudes in the United States; Westgate et al., 2015; and the United Kingdom; Abrams et al., 2018), negative attitudes toward LGBTIQ+ individuals can be observed in several parts of the world (e.g., some countries in Eastern Europe; O'Dwyer & Vermeersch, 2016; Zezelj et al., 2019). Furthermore, legal disadvantages (e.g., in terms of marriage and adoption laws) continue to exist in most countries.

#### **Method**

##### ***Participants.***

More than quadrupling the sample size of Study 1, Study 2 relies on a subsample of  $N = 3,382$  LGBTIQ+ individuals from the ZIP dataset (Hässler et al., 2020). We only included national contexts for which at least 100 observations were available (see Table 3). The subsample included 1,221 male, 1,839 female, and 322 other participants ( $M_{age} = 30.35$ ,  $SD_{age} = 12.65$ , see Table 4 for sample composition).

Table 3  
*Overview of Included Samples – LGBTIQ+ Individuals (N = 3,382)*

Country	N	Country	N
Austria	110	Hungary	171
Belgium	157	Italy	199
Brazil	103	Netherlands	160
Canada	227	Poland	176
Chile	236	Russia	123
Croatia	107	Spain	318
Czech Republic	125	Switzerland	323
France	122	United Kingdom	125
Germany	442	United States	158

Table 4  
*Sample Composition (LGBTIQ+ Individuals)*

Sexual Orientation/ Gender	Male	Female	Intersex	Other	N
Heterosexual	21 (21)	16 (16)	2 (0)	23 (13)	62 (50)
Bisexual	193 (28)	754 (25)	11 (4)	74 (62)	1032 (119)
Homosexual	940 (22)	812 (28)	9 (4)	49 (35)	1810 (89)
Asexual	27 (7)	98 (5)	3 (1)	42 (36)	170 (49)
Other	40 (17)	159 (15)	1 (0)	108 (97)	308 (129)
N	1,221 (95)	1,839 (89)	26 (9)	296 (243)	3,382 (436)

*Note:* In parentheses: Individuals identifying as trans.

### **Measures.**

We used the same set of measures as in Study 1, except that we did not measure quantity of contact (see Supplementary Materials), considering the high numbers of cis-

heterosexual individuals every LGBTIQ+ individual knows at least as acquaintance. All items were tailored to the LGBTIQ+ context.

### ***Analytic strategy.***

We used the same analytic strategy as in Study 1. However, because we used four instead of five operationalizations of intergroup contact, the overall number of hypothesis tests across operationalizations and data exclusions was 320 instead of 400.

## **Results**

### ***Analyses with intergroup contact satisfying the need for empowerment.***

Table 5 provides an overview of the coefficients estimated in 320 regression models with varying operationalizations and data exclusions. In line with Study 1, a majority (62%) of the coefficients obtained for the average effect of intergroup contact on support for social change (Hypothesis 1a) were significantly negative ( $p_{\text{overall}} < .001$ ), but some regression models also produced significantly positive coefficients (14%,  $p_{\text{overall}} < .001$ ). This is consistent with the results of Hässler et al. (2020). Visualizations and meta-regression available in the Supplementary Materials confirmed that, as in Study 1, the subset of positive coefficients mainly involved the measure *willingness to work in solidarity*—such that intergroup contact was related to LGBTIQ+ individuals' greater support for change toward equality when this construct tapped willingness to work in solidarity with cis-heterosexual individuals (rather than other aspects of support for change).

As in Study 1, our novel hypothesis regarding the effects of empowering contact received clear support (Hypothesis 2a). After accounting for the effects of intergroup contact and perceived illegitimacy (and their interactions), satisfaction of the need for empowerment was related to more support for social change, which was significant in 58% of the tests ( $p_{\text{overall}} < .001$ ). In contrast, only 4% of the coefficients were significantly negative, which is consistent with chance levels ( $p_{\text{overall}} = .336$ ).

Table 5

*Coefficients From 320 Regression Models Predicting Support for Social Change Among LGBTIQ+ Individuals (Study 2)*

H	Predicted Effect	Predictor Variable	Min (b)	Max (b)	Significantly negative results		Significantly positive results	
					%	$p_{\text{overall}}$	%	$p_{\text{overall}}$
1a	Negative	Intergroup Contact (C)	-.25	.17	<b>62%</b>	<b>&lt; .001</b>	14%	<b>&lt; .001</b>
2a	Positive	Empowerment (E)	-.08	.11	4%	.336	<b>58%</b>	<b>&lt; .001</b>
-	—	Illegitimacy (I)	.00	.33	0%	1	95%	<b>&lt; .001</b>
3a	Positive	C x E	-.03	.08	2%	.966	<b>15%</b>	<b>.004</b>
-	—	C x I	-.21	.09	18%	<b>&lt; .001</b>	14%	<b>&lt; .001</b>
4a	Positive	E x I	-.10	.05	1%	.984	<b>3%</b>	<b>.982</b>
5a	Positive	C x E x I	-.12	.08	1%	1	<b>19%</b>	<b>&lt; .001</b>

*Note.* H = Hypothesis. Results shown in bold pertain to preregistered hypotheses and are based on one-tailed individual significance tests. All other results are based on two-tailed individual significance tests.

Consistent with the literature and with the results in Study 1, the effect of perceived illegitimacy was positive in all regressions, and significantly so 95% of the time ( $p_{\text{overall}} < .001$ ). In other words, the effects of empowerment almost always compete against the effect of perceived illegitimacy, which further demonstrates the robustness of results regarding our main hypothesis.

According to Hypothesis 3a, need satisfaction should interact with intergroup contact such that the effect of intergroup contact would be less negative (or even positive), the higher the satisfaction of the need for empowerment during intergroup contact. In line with this hypothesis, 15% of the interactions were significantly positive ( $p_{\text{overall}} = .004$ ), while only 2% were significantly negative, which is consistent with chance levels ( $p_{\text{overall}} = .966$ ). Thus, as in Study 1, feeling empowered buffered the “irony of harmony” effect of intergroup contact on support for change among LGBTIQ+ individuals.

Though not hypothesized a priori, it is also interesting to note that the effect of intergroup contact was qualified by interactions with perceived illegitimacy, of which 18% were significantly negative ( $p_{\text{overall}} < .001$ ), implying stronger negative effects of intergroup contact at higher levels of perceived illegitimacy. At the same time, 14% of the intergroup contact—perceived illegitimacy interactions were significantly positive ( $p_{\text{overall}} < .001$ ), implying the opposite direction of moderation.

The hypothesis regarding the moderating effect of perceived illegitimacy on the association between empowerment and support for social change was not supported among LGBTIQ+ individuals (Hypothesis 4a). Table 5 reveals that the surprising negative interactions observed in Study 1 were not replicated. The two-way interactions between empowering contact and perceived illegitimacy were generally non-significant. However, consistent with Hypothesis 5a, the three-way interaction was significantly positive 19% of the time ( $p_{\text{overall}} < .001$ ), suggesting that the buffering effect of empowering contact (i.e., the negative two-way interaction) would emerge at higher levels of perceived illegitimacy. That is, intergroup contact satisfying the need for empowerment attenuates the “irony of harmony” among sexual and gender minorities who perceive the existing arrangements involving LGBTIQ+ issues as particularly unjust.

***Analyses with intergroup contact satisfying the need for acceptance.***

In order to verify that the observed effects are specific to satisfaction of the need for empowerment, we re-estimated all regressions using satisfaction of the need for acceptance (instead of empowerment). As in Study 1, intergroup contact that was experienced as accepting affected support for social change in opposite ways than intergroup contact that was experienced as empowering. The average effect of contact satisfying the need for acceptance ranged from  $-.19$  to  $.04$ . and was significantly negative in 82% of the regressions ( $p_{\text{overall}} < .001$ ), mirroring the effect of intergroup contact more generally. Satisfaction of the

need for acceptance did not buffer the negative effect of contact in any of the regressions (i.e., unlike empowering contact), and there was a positive moderator effect of intergroup contact that afforded acceptance in 3% of the regressions ( $p_{\text{overall}} = .725$ ). The moderating effect of perceived illegitimacy on the accepting contact—support-for-social-change relationship was significantly positive in 10% of the results ( $p_{\text{overall}} = .002$ ). Thus, the negative effect of intergroup contact that afforded acceptance on support for social change was smaller when perceived illegitimacy was high. Finally, in contrast to the positive three-way interactions for empowering contact, the three-way interaction involving accepting contact was significantly negative in 11% of the results ( $p_{\text{overall}} = .003$ ), but never significantly positive ( $p_{\text{overall}} = 1$ ).

## **Discussion**

Study 2 further corroborated the hypothesis that “irony of harmony” effects would be smaller, or even reversed, when disadvantaged group members experience intergroup contact with the advantaged group as empowering. Among LGBTIQ+ individuals reporting on their intergroup contact with cis-heterosexual individuals, satisfaction of the need for empowerment (but not satisfaction of the need for acceptance) was related to more support for social change and buffered the negative effect of intergroup contact. Reflecting the much larger sample size, the number of significant effects consistent with our hypothesis was larger and thus more consistent across operationalizations. Importantly, the effects of need satisfaction were unique to satisfaction of the need for empowerment. As in Study 1, exploratory analyses revealed that satisfaction of the need for acceptance was related to *less* support for social change. This effect was even more frequently obtained than the negative effect of intergroup contact, suggesting that it is particularly accepting contact (i.e. feeling welcomed and accepted by the outgroup) that is responsible for irony of harmony effects.



The moderating effects of illegitimacy were only partially in line with expectations. Results suggested that the buffering effect of satisfaction of the need for empowerment was stronger, the higher the illegitimacy (i.e. the three-way interaction was supported). However, the two-way interactions of empowering contact and perceived illegitimacy were largely non-significant. Viewed together with the interaction effects observed in Study 1, which contradicted our predictions, the role of perceived illegitimacy remains unclear despite the larger sample size and the more homogeneous sample composition.

A possible explanation lies in the fact that, in absolute terms, perceived illegitimacy was generally high in both Study 1 ( $M_{\text{System Justification [recoded]}} = 4.40$ ,  $SD_{\text{System Justification [recoded]}} = 1.51$  and  $M_{\text{Illegitimacy of Group Differences}} = 5.49$ ,  $SD_{\text{Illegitimacy of Group Differences}} = 1.75$ , on a 7-point-Likert scale) and Study 2 ( $M_{\text{System Justification [recoded]}} = 4.64$ ,  $SD_{\text{System Justification [recoded]}} = 1.31$  and  $M_{\text{Illegitimacy of Group Differences}} = 6.52$ ,  $SD_{\text{Illegitimacy of Group Differences}} = 1.13$ ). Note that our hypotheses regarding the moderating role of perceived illegitimacy are based on previous theorizing (Shnabel & Ullrich, 2013) and findings (Hässler et al., 2019; Siem et al., 2013) that disadvantaged group members' need for empowerment is aroused when group disparity is perceived as illegitimate, but not when it is perceived as legitimate. It is possible that the conditions for testing this hypothesis in the present research were suboptimal, because both the ethnic disadvantaged group members in Study 1's sample and the LGBTIQ+ individuals in Study 2's sample generally perceived the existing social conditions as illegitimate. Future research may examine this hypothesis in contexts characterized by greater variance of perceptions of illegitimacy among disadvantaged group members.

### **Study 3: Advantaged Ethnic Groups**

Having shown that empowering contact is associated with more support for social change among disadvantaged groups, we now test the predictions of our model for advantaged groups. Study 3 tested our hypotheses among members of advantaged ethnic

groups (e.g., White people in Brazil, Non-Muslims in Germany, non-immigrant Chileans in Chile).

## Methods

### *Participants.*

Study 3 relies on a subsample of  $N = 2,937$  members of ethnic majorities from the ZIP dataset (Hässler et al., 2020), including national contexts for which at least 100 observations were available (see Table 6). The sample included 983 male, 1,942 female, 13 other participants ( $M_{age} = 28.31$ ,  $SD_{age} = 11.23$ ).

Table 6  
*Overview of Included Samples – Advantaged Ethnic Groups ( $N = 2,937$ ) and the Disadvantage Group to Which They Referred*

Category Advantaged/ Disadvantaged	Country	$N_{Advantaged}$
Belgians / Moroccans	Belgium	101
White people / Black people	Brazil	166
Non-Indigenous / Mapuche	Chile	165
Chileans / Peruvians	Chile	132
Non-Muslims / Muslims	Germany	192
Germans / Refugees (Sample 1)	Germany	142
Germans / Refugees (Sample 2)	Germany	175
Germans / Turks	Germany	205
Israelis / Arabs	Israel	117
Israelis / Ethiopians <sup>1</sup>	Israel	97
Albanians / Serbs <sup>1</sup>	Kosovo	66
Polish / Ukrainians	Poland	134
Serbs / Bosniaks	Serbia	106

<sup>1</sup> We included all samples where at least 100 participants had completed the questionnaire. Participants who (i) had at least one missing value on quantity of contact, number of outgroup friends, or attention check items, (ii) reported having no outgroup contact, and (iii) who had not answered 20% (or more) of the items used in the analyses were excluded.

Category	Country	$N_{\text{Advantaged}}$
Advantaged/ Disadvantaged		
Non-Roma / Sinti & Roma	Spain	508
Non-Muslims / Muslims	Switzerland	118
Swiss / Portuguese immigrants	Switzerland	129
Non-Muslims / Muslims	United Kingdom	148
British / Asians	United Kingdom	101
White people/ Black people	United States	135

### ***Measures.***

We used the same set of measures as in Study 1, tailored to ethnic majority members (see Supplementary Materials).

### ***Analytic strategy.***

We used the same analytic strategy as in Study 1. As in Study 1, the overall number of hypothesis tests across operationalizations and data exclusions was 400.

## **Results**

### ***Analyses with intergroup contact satisfying the need for acceptance.***

Table 7 provides an overview of the coefficients estimated in 400 regression models with varying operationalizations and data exclusions. We first confirmed that intergroup contact was positively related to support for social change and then moved on to the hypothesis about the effects of acceptance. The coefficients obtained for the average effect of intergroup contact (Hypothesis 1b) were consistent with the results of Hässler et al. (2020) in that almost all coefficients (97%) were significantly positive ( $p_{\text{overall}} < .001$ ).

Next, we tested our novel hypothesis regarding the effects of accepting contact on support for social change (Hypothesis 2b), which received good support. After accounting for the effects of intergroup contact and perceived illegitimacy (and their interactions), satisfaction of the need for acceptance was related to more support for social change, which

was significant 51% of the time ( $p_{\text{overall}} < .001$ ). Contrary to our expectations, we also found 10% of the coefficients to be significantly negative ( $p_{\text{overall}} < .001$ ). Further inspection of results (see Supplementary Materials) suggested that the negative effects occurred for analyses involving the dependent measure *raising ingroup-awareness*, while all other dependent measures were associated with positive effects.

Consistent with the literature and the results for disadvantaged group members obtained in Studies 1 and 2, the effect of perceived illegitimacy on support for social change was significantly positive in 97% of the regressions ( $p_{\text{overall}} < .001$ ). This suggests that advantaged group members who perceive group inequalities to be illegitimate are more inclined to support social change. Considering that the previously reported effects of need satisfaction were obtained while controlling for the robust influence of perceived illegitimacy, this is a testament to the importance and added value of need satisfaction during intergroup contact experiences for social change.

Table 7  
*Coefficients From 400 Regression Models Predicting Support for Social Change Among Advantaged Ethnic Groups (Study 3).*

H	Predicted Effect	Predictor Variable	Min (b)	Max (b)	Significantly negative results		Significantly positive results	
					%	$p_{\text{overall}}$	%	$p_{\text{overall}}$
1b	Positive	Intergroup Contact (C)	.01	.47	0%	1	<b>97%</b>	<b>&lt; .001</b>
2b	Positive	Acceptance (A)	-.14	.20	10%	<.001	<b>51%</b>	<b>&lt; .001</b>
-	—	Illegitimacy (I)	-.01	.41	0%	1	97%	< .001
3b	Positive	C x A	-.09	.09	15%	< .001	<b>8%</b>	<b>.245</b>
-	—	C x I	-.06	.08	3%	.737	17%	< .001
4b	Positive	A x I	-.07	.12	6%	.160	<b>23%</b>	<b>&lt; .001</b>
5b	Positive	C x A x I	-.06	.07	10%	.005	<b>17%</b>	<b>&lt; .001</b>

*Note.* H = Hypothesis. Results shown in bold pertain to preregistered hypotheses and are based on one-tailed individual significance tests. All other results are based on two-tailed individual significance tests.

According to Hypothesis 3b, need satisfaction would interact with intergroup contact such that the positive effect of intergroup contact would be more pronounced the higher the satisfaction of the need for acceptance during intergroup contact. Contrary to our hypothesis, satisfaction of the need for acceptance did not positively moderate the intergroup contact effect (with only 8% of the coefficients being significantly positive;  $p_{\text{overall}} = .245$ ). Instead, we found a negative moderation in 15% of the results,  $p_{\text{overall}} < .001$ . Thus, the positive effect intergroup contact on ethnic majorities' support for change was smaller when acceptance was high, and the effect of acceptance was smaller when contact was more frequent or more positive.

Next, we tested whether the link between intergroup contact that satisfied the need for acceptance and support for social change would be stronger among advantaged group members with high levels of perceived illegitimacy (Hypothesis 4b). We found the expected moderator effect in 23% of the tests ( $p_{\text{overall}} < .001$ ). The opposite direction of the moderator effect was not supported (6% significant,  $p_{\text{overall}} = .160$ ). Thus, the positive effects of contact that afforded acceptance on support for social change were larger when perceived illegitimacy was high. With regard to the interaction between perceived illegitimacy and need satisfaction, which was included as a statistical requirement for estimating the theoretically derived interactions, we obtained significantly positive coefficients in 17% of the tests ( $p_{\text{overall}} < .001$ ), such that the positive effect of intergroup contact was larger when illegitimacy was perceived as high.

Consistent with Hypothesis 5b, the three-way interaction involving intergroup contact that afforded acceptance was significantly positive in 17% of the results ( $p_{\text{overall}} < .001$ ). At the same time, 10% of the three-way interactions were significantly negative ( $p_{\text{overall}} = .005$ ).

### ***Analyses with intergroup contact satisfying the need for empowerment.***

Are the effects of need satisfaction specific to acceptance, as our model implies? In order to answer this question, we re-estimated all regressions using measures of satisfaction of the need for empowerment (instead of acceptance). The average effect of empowering contact ranged from .01 to .18 and was significantly positive in 94% of the regressions ( $p_{\text{overall}} < .001$ ). Contrary to our assumptions, measures of empowering contact produced even stronger associations with support for social change than measures of accepting contact. In addition, we found that satisfaction of the need for empowerment moderated intergroup contact effects (9% of the interactions were significantly positive,  $p_{\text{overall}} = .007$ ). Surprisingly, then, the number of significant main and moderating effects of need satisfaction was larger when need satisfaction was measured with regard to empowerment rather than acceptance, whilst the latter is the more salient need of advantaged groups. The moderating effect of perceived illegitimacy on the link between empowering contact and support for social change was significantly positive in only 3% of the results ( $p_{\text{overall}} = .872$ ). Finally, the three-way interactions involving empowering contact were significantly negative in 24 % of the results ( $p_{\text{overall}} < .001$ ), while we did not find a positive three-way interaction (4% significant;  $p_{\text{overall}} = .815$ ).

### **Discussion**

Study 3 used a diverse international sample of members of advantaged ethnic groups to test the incremental effect of need satisfaction on support for social change. Across a large variety of operationalizations, our results clearly demonstrate that the satisfaction of the acceptance need has an independent positive effect on support for social change over and above the positive effect of intergroup contact. One exception was that analyses involving the outcome variable *raising ingroup awareness* yielded reliable results in the opposite direction. In other words, the more the contact was experienced as accepting, the lower participants'

willingness to discuss with ingroup members about the unfair disadvantages of the outgroup. The results by and large also support the notion that satisfaction of the need for acceptance would have stronger effects on support for social change when there were high levels of perceived illegitimacy of the outgroup's disadvantage.

Contrary to our expectation, however, need satisfaction did not positively moderate the effects of intergroup contact on support for social change. It was also unexpected that repeating all analyses with the measure for empowering contact instead of accepting contact would produce similar results. Experiencing contact as satisfying needs for empowerment and acceptance were both positively related to support for social change over and above the effects of intergroup contact per se. To test whether the pattern of expected and unexpected results would generalize from the ethnic/racial domain to the context of sexual orientation/gender identity, we conducted an additional study in the context of cis-heterosexual individuals' contact with LGBTIQ+ individuals.

#### **Study 4: Cis-Heterosexual Individuals**

In Study 4, we tested the same hypotheses as in Study 3, now among members of groups that are advantaged based on their sexual orientation and gender identity, i.e., cis-heterosexual individuals.

#### **Methods**

##### ***Participants.***

Study 4 relies on a subsample of  $N = 4,203$  cis-heterosexual individuals from the ZIP dataset (Hässler et al., 2020). We included national contexts for which at least 100 observations were available (see Table 8). The sample included 1,289 male and 2,914 female participants ( $M_{age} = 28.90$ ,  $SD_{age} = 12.47$ ).

Table 8  
*Overview of Included Samples – Cis-Heterosexual Individuals (N = 4,203)*

Country	N	Country	N
Belgium	180	Mexico <sup>2</sup>	98
Brazil	121	Netherlands	274
Canada	369	Poland	184
Chile	298	Russia	166
Croatia	168	Spain	408
Czech Republic	105	Switzerland	320
Germany	641	Turkey <sup>2</sup>	96
Hungary	229	United Kingdom	113
Italy	167	United States	185
Kosovo <sup>2</sup>	81		

## Results

### *Analyses with intergroup contact satisfying the need for acceptance.*

Table 9 provides an overview of the coefficients estimated in 400 regression models with varying operationalizations and data exclusions among cis-heterosexual individuals.

The coefficients obtained for the effect of intergroup contact on support for social change (Hypothesis 1b) were consistent with the results of Hässler et al. (2020) in that almost all coefficients (99%) were significantly positive ( $p_{\text{overall}} < .001$ ).

In line with results observed among ethnic advantaged groups, our hypothesis regarding the effect of accepting contact on support for social change (Hypothesis 2b) was supported in the majority of specifications (68%,  $p_{\text{overall}} < .001$ ). However, 12% of the regression coefficients were significantly negative, which is also unlikely to have occurred by

<sup>2</sup> For exclusion of individual participants see footnote 1 above.



Table 9

*Coefficients From 400 Regression Models Predicting Support for Social Change Among Cis-Heterosexual Individuals (Study 4)*

H	Predicted Effect	Predictor Variable	Min (b)	Max (b)	Significantly negative results		Significantly positive results	
					%	$p_{\text{overall}}$	%	$p_{\text{overall}}$
1b	Positive	Intergroup Contact (C)	.01	.41	0%	1	<b>99%</b>	<b>&lt; .001</b>
2b	Positive	Acceptance (A)	-.08	.17	12%	< .001	<b>68%</b>	<b>&lt; .001</b>
-	–	Illegitimacy (I)	-.09	.29	5%	.202	90%	< .001
3b	Positive	C x A	-.09	.05	15%	< .001	<b>1%</b>	<b>1</b>
-	–	C x I	-.09	.05	29%	< .001	6%	.033
4b	Positive	A x I	-.06	.05	5%	.247	<b>16%</b>	<b>&lt; .001</b>
5b	Positive	C x A x I	-.08	.07	14%	< .001	<b>24%</b>	<b>&lt; .001</b>

*Note.* H = Hypothesis. Results shown in bold pertain to preregistered hypotheses and are based on one-tailed individual significance tests. All other results are based on two-tailed individual significance tests.

chance ( $p_{\text{overall}} < .001$ ). Further investigation revealed that, as in Study 3, the significantly negative effects were obtained when *raising ingroup awareness* was used to operationalize support for social change.

Consistent with the previously reported studies, the effect of perceived illegitimacy was significantly positive in 90% of the regressions ( $p_{\text{overall}} < .001$ ). Contrary to Hypothesis 3b, only 1% of the interactions between intergroup contact and satisfaction of the need for acceptance were significantly positive ( $p_{\text{overall}} = 1$ ). Instead, we found a proportion of statistically negative coefficients which is unlikely to have occurred by chance (15%,  $p_{\text{overall}} < .001$ ), indicating that effect of intergroup contact on cis-heterosexual individuals' support for social change was smaller when acceptance was high, and that the effect of acceptance was

smaller when contact was more frequent or more positive, mirroring Study 3's results (see Table 7).

Hypothesis 4b was supported in 16% of analyses, indicating that perceived illegitimacy positively moderated the effect of satisfaction of the need for acceptance on support for social change ( $p_{\text{overall}} < .001$ ), such that the positive effect of acceptance was stronger under higher perceptions of illegitimacy. There was no evidence of moderating effects in the opposite direction (5% significant,  $p_{\text{overall}} = .247$ ). As in Study 3, perceived illegitimacy also moderated the positive effects of intergroup contact (6% significant,  $p_{\text{overall}} = .033$ ), but this effect emerged in relatively few specifications. The higher the perceived illegitimacy, the more positive were the effects of intergroup contact on support for social change. Contrary to Study 3, we also found evidence for a moderation effect in the opposite direction (29% significant,  $p_{\text{overall}} < .001$ ).

The three-way interaction involving intergroup contact, satisfaction of the need for acceptance, and perceived illegitimacy, was significantly positive in 24% of analyses, consistent with Hypothesis 5b ( $p_{\text{overall}} < .001$ ). However, in 14% of cases, the interaction was significantly negative ( $p_{\text{overall}} < .001$ ).

#### ***Analyses with intergroup contact satisfying the need for empowerment.***

To examine whether the effects of need satisfaction were unique to the need for acceptance, we re-estimated all regressions using measures of satisfaction of the need for empowerment (instead of acceptance; see Supplementary Materials). As in Study 3, the number of significant effects supporting our main hypotheses was in fact larger when empowerment rather than acceptance was examined as the need satisfied during contact. The average effect of empowering contact ranged from .01 to .18 and was significantly positive in 95% of the regressions ( $p_{\text{overall}} < .001$ ). In addition, we found that in 6% of the regressions the effect of intergroup contact on support for social change was positively moderated by

empowering contact ( $p_{\text{overall}} = .055$ ). The moderating effect of perceived illegitimacy on the empowering contact—support-for-social-change relationship was significantly positive in only 2% of the results ( $p_{\text{overall}} = .942$ ). Finally, the three-way interaction involving empowering contact was significantly positive in 9% of the results ( $p_{\text{overall}} < .001$ ), but also significantly negative in 20% of the results ( $p_{\text{overall}} < .001$ ).

## Discussion

Study 4 supported our hypotheses that the satisfaction of cis-heterosexual individuals' acceptance need would have a positive effect on support for social change, over and above the positive effect of intergroup contact. However, Study 4 also clearly demonstrated that not only accepting contact, but also empowering contact had positive effects on cis-heterosexual individuals' support for social change, replicating the pattern found among advantaged ethnic groups (Study 3). This suggests that for advantaged groups the distinction between feeling accepted vs. empowered by the outgroup is less crucial. In other words, regardless of the form of need satisfaction during their encounters with disadvantaged groups, members of advantaged groups with more frequent and more positive intergroup contact were more willing to engage in solidarity-based support for social change. One important exception was that accepting contact was negatively associated with *raising ingroup awareness*, replicating the unexpected finding among ethnic majorities. We offer several possible explanations for this finding in the General Discussion.

The moderating effects of perceived illegitimacy were generally in line with assumptions and consistent with the results of Study 3. That is, need satisfaction was more strongly associated with support for social change among those participants who perceived the outgroup's disadvantage as more illegitimate. However, the three-way interaction between intergroup contact, need satisfaction, and perceived illegitimacy produced significant numbers of positive as well as negative effects in both Studies 3 and 4.

Interpretation of this complexity would necessarily be highly speculative at this point, but further empirical investigations, that are beyond the scope of the present research, might eventually provide resolution regarding a more stable underlying set of relationships.

### **General Discussion**

In the present research we sought to identify whether intergroup contact — which is typically associated with increased support for change toward equality among advantaged group members, but decreased support for change toward equality among disadvantaged group members (Hässler et al., 2020) — can promote support for change among both advantaged and disadvantaged groups to the extent that key psychological needs of both groups are satisfied. Guided by the theoretical framework of the needs-based model (Nadler & Shnabel, 2015), we predicted and found that contact through which disadvantaged group members felt empowered, and advantaged group members felt morally and socially accepted, was associated with increased support for social change.

The conclusion that need satisfaction is correlated with support for change is based on the results of a total of 1,520 regression models, which varied the operationalization of each construct and the nature of data exclusions. Although the strength of the evidence varied across the different regression models and despite a few unexpected results for advantaged groups (see below), the number of significant results in line with our main novel hypothesis was, in each and every study, considerably higher than what can be expected to occur by chance – while results in the non-predicted direction were generally unreliable. Furthermore, the effects of need satisfaction were consistent across substantially different kinds of disadvantaged groups (Study 1: ethnic minorities, Study 2: LGBTIQ+ individuals) and advantaged groups (Study 3: ethnic majorities, Study 4: cis-heterosexual individuals), allowing for broad generalizations across different contexts in which unequal social relations exist. Therefore, in Table 10, which gives an overview of the results regarding all five

hypotheses across studies, we classified results regarding H2 (the effect of need satisfaction on support for social change) as “consistently positive”.

Table 10

*Overview of the Main Results for all 5 Hypotheses and all Four Populations*

Hypothesis	Disadvantaged Groups	Advantaged Groups
<i>H1: Relationship between intergroup contact and support for social change.</i>	<b>Consistently negative.</b> Exception: working in solidarity.	<b>Consistently positive.</b>
<i>H2: Relationship between satisfaction of need for empowerment (disadvantaged groups) and need for acceptance (advantaged groups) and support for social change.</i>	<b>Consistently positive.</b>	<b>Consistently positive.</b> Exception: raising ingroup awareness.
<i>H3: Moderating effect of need satisfaction on the relationship between intergroup contact and support for social change.</i>	<b>Consistently positive.</b>	Consistently negative.
<i>H4: The effect of need satisfaction on support for social change should be stronger, the greater the perceived illegitimacy.</i>	Inconsistent. Ethnic minorities negative, LGBTIQ+ individuals n.s.	<b>Consistently positive.</b>
<i>H5: The moderating influence of need satisfaction on the effect of intergroup contact on social change should be stronger, the greater the perceived illegitimacy.</i>	Inconsistent. Ethnic minorities negative, LGBTIQ+ individuals positive.	Inconclusive pattern of results (both positive and negative results).

*Note.* Results shown in bold are consistent with the postulated hypotheses.

## The Effect of Need-Satisfaction on Support for Social Change Among Disadvantaged Group Members

The radically different effects of empowering and accepting contact observed among disadvantaged groups reinforce the insight that it is important to distinguish not only between positive and negative intergroup contact experiences (e.g., Barlow et al., 2012; Reimer et al., 2017), but also between different types of positive intergroup contact: contact that is empowering and contact that is accepting. Empowering contact, in which disadvantaged group members felt that advantaged group members perceived them personally, as well as their ingroup, as competent and listened to what they had to say, was associated with increased support for change. This finding appears consistent with previous evidence on

“supportive contact”, through which advantaged group members clearly describe the group disparity as illegitimate (Becker et al., 2013), express support for social change (Droogendyk, Louis, & Wright, 2016; Techakesari et al., 2017), or communicate status-based respect (Glasford & Johnston, 2017). Importantly, this finding also demonstrates that the “irony of harmony” effect is not inevitable and can be reversed once disadvantaged group members’ strong need “to be heard” by the advantaged group (Bruneau & Saxe, 2012) is addressed (see also Kteily & McClanahan, 2020 for a theoretical discussion).

Previous evidence indicates that people’s psychological needs are substantially different in interpersonal vs. intergroup interactions (Aydin et al., 2019a; see also the interindividual-intergroup discontinuity effect, Insko et al., 2005). However, we found that empowerment at both the personal and group levels had similar effects on disadvantaged group members’ support for change—consistent with the notion that the personal is political. Thus, disadvantaged group members wanted their own and their ingroup’s voice to be heard, and intergroup contact that satisfied these wishes was associated with greater support for change. By contrast, feeling morally and socially accepted by advantaged group members, both at the personal and group levels, was related to less support for social change among disadvantaged group members—amplifying the “irony of harmony” effect.

### **The Effect of Need-Satisfaction on Support for Social Change Among Advantaged Group Members**

As for advantaged group members, contrary to the effect among disadvantaged group members and in line with our hypothesis, intergroup contact in which they felt welcomed and reassured that they are not perceived as prejudiced, at both the personal and group levels, was associated with increased support for change. Thus, disadvantaged-group members’ expression of acceptance and reassurance concerning the advantaged group’s morality did not lead to moral “credentialing” or “licensing” effects (Merritt et al., 2010; Monin & Miller,

2001; Sachdeva et al., 2009; Zhong et al., 2009) among the advantaged. Rather, removing the threat posed to advantaged group members' morality—a central dimension in people's personal and group identity (e.g., Leach et al., 2007) —was associated with their increased readiness for social change toward equality. This finding is consistent with previous research showing that members of conflicting groups are ready to relinquish some power for the sake of being more moral toward the other group once their threatened positive identity is restored (SimanTov-Nachlieli et al., 2018).

Notably, however, advantaged group members' feeling that disadvantaged group members perceived them personally, or their ingroup, as competent and listened to what they had to say was also associated with increased support for change. Indeed, our results allow for the clear conclusion that among advantaged groups, *any* kind of intergroup contact (that is not negative) is in general related to greater support for social change. We found, however, one important exception to this overall positive effect among both ethnic majorities and cis-heterosexual individuals. Intergroup contact was not (or, in the case of accepting contact, even negatively) associated with the willingness to raise ingroup-awareness about inequalities.

Moreover, advantaged groups were in general rather reluctant to talk about inequalities with their ingroup peers (on a 7-point Likert scale:  $M_{\text{Ethnic Majorities}} = 2.59$ ,  $SD_{\text{Ethnic Majorities}} = 1.47$ ;  $M_{\text{Cis-Heterosexual Individuals}} = 2.66$ ,  $SD_{\text{Cis-Heterosexual Individuals}} = 1.45$ ). This is especially problematic considering that critical consciousness of existing inequalities is central to challenging them (Vollhardt & Twali, 2016). Moreover, the literature on confrontation behaviors suggests that confrontation by those who are not directly negatively affected by existing inequalities are perceived as more credible than confrontation by those who are directly affected by existing inequalities (Czopp & Monteith, 2003). Therefore, advantaged groups can play an elementary role in changing existing inequalities. Consequently,

advantaged groups' unwillingness to confront inequalities might contribute to failure of some advantaged group members to recognize own privileges, further mask existing privileges, and undermine a powerful way to change the hearts and minds of those advantaged groups who perceive group-based disparities as legitimate (see also Droogendyk, Louis, & Wright, 2016).

### ***Whence the Surprising Effect of Empowerment Among Advantaged Groups?***

A possible explanation for the finding that among advantaged groups, feeling empowered had a similar effect to that of feeling accepted is that these needs might be indistinguishable (i.e., both simply reflect the experience of positive intergroup contact). The high correlation between empowerment and acceptance needs in all four studies and the resulting necessity to use residualized variables (in each case controlling for the other need) seems to support this interpretation. Nevertheless, making this interpretation less plausible, the confirmatory factor analysis indicated that a two-factor solution fitted the data better than a single-factor solution. Moreover, despite their strong correlation, empowerment and acceptance had oppositional effects on support for social change among disadvantaged group members. These results suggest that people can discriminate empowering and accepting contact. If so, why do these discriminable forms of intergroup contact not have different effects for advantaged group members?

One possibility is that the needs for acceptance and empowerment are hierarchically arranged, consistent with the distinction between the lower-order "categorical respect", granted based on membership in a common community, and the higher-order "contingent respect", granted based on status and relative ranking (Janoff-Bulman & Werther, 2008). Being accepted does not necessarily imply being empowered (which may explain the divergent effects among the disadvantaged) whereas being empowered implies, at least to some extent, being morally and socially accepted (which may explain the corresponding



effects among the advantaged). It is difficult to conclusively assess this explanation based on correlational data.

Another possible explanation, which may operate together with the previous one, is that our measure of group members' sense of empowerment did not fully capture this multifaceted construct (SimanTov-Nachlieli et al., 2013). Due to our wish to use an identical measure in all four studies, the items had to make sense and carry similar meaning for both advantaged and disadvantaged groups — leading us to focus on two particular components of empowerment; namely, voice and competence. However, the concept of empowerment includes additional components. For example, the acknowledgement of the injustice caused to the disadvantaged and the need to atone for it, constitutes a key component of empowerment (Shnabel & Ullrich, 2013). However, such “acknowledgement of injustice” (e.g. LGBTIQ+ individuals apologizing for their unjust treatment of cis-heterosexual individuals) carries the exact opposite meaning (reinforcing, rather than challenging the status quo) when expressed by the disadvantaged groups. Moreover, due to the asymmetric power relations, the very same items carry different psychological meaning for the advantaged and disadvantaged. For example, having a voice is psychologically crucial for members of a group that has been silenced, but less so for members of a hegemonic group (Bruneau & Saxe, 2012). This may obscure the differences between acceptance and empowerment among the advantaged.

### **The Moderating Effect of Need-Satisfaction on the Relationship Between Intergroup Contact Support for Social Change**

Regarding the moderating effect of need satisfaction on the relation between intergroup contact and support for social change, we found an interesting pattern of results (see Table 10). As hypothesized, this moderating effect was consistently positive for ethnic minorities and LGBTIQ+ individuals. That is to say, the more they perceived intergroup

contact as empowering, the less negative the effects of intergroup contact on support for social change were. This result provides indirect evidence for empowerment as the causally active element in intergroup contact, without which intergroup contact would likely result in “irony of harmony” effects (see Jacoby & Sassenberg, 2011, for using moderation to assess mediation).

However, there was consistent evidence for a negative moderating effect among advantaged groups. This implies that when advantaged group members report feeling accepted during intergroup contact, the extent of their (positive) intergroup contact is less strongly related to support for social change than when they report feeling less accepted. In the same vein, the higher the extent to which advantaged group members report positive intergroup contact (particularly with outgroup friends), the less strongly the satisfaction of their need for acceptance is positively related to their support for social change.

What might explain this finding? First, it is important to consider that the direct effects of both intergroup contact and satisfaction of the need for acceptance on support for social change were clearly positive for advantaged groups. This positive effect appears to be merely reduced, not negated, by the satisfaction of advantaged group members’ need for acceptance. Possibly, feeling accepted during positive and frequent intergroup contact might contribute to an impression of non-urgency regarding social change, because in case of urgency, disadvantaged group members might be expected to express anger and discuss social injustices during intergroup contact. Bringing up such issues can be expected to make advantaged group members feel less accepted as compared to intergroup contact in which such issues are not discussed. Alternatively, acceptance by the outgroup may be especially relevant for advantaged group members, who are preoccupied with how outgroup members view them. While such evaluative concerns during intergroup interactions are known to narrow attention (i.e., focusing on self and ingroup rather than potential collective action on

behalf of disadvantaged groups), they are typically less prominent when individuals have more frequent intergroup contact (e.g., Vorauer et al., 2006). Thus, the negative interaction effect might indicate that satisfaction of the need for acceptance might become less relevant, the more frequently they experience intergroup contact.

However, our findings do not indicate that making advantaged group members feel accepted during intergroup contact is detrimental to promoting support for social change, as demonstrated by the positive main effect of need satisfaction on support for social change. Rather, we would argue that these results may suggest that it may be best for disadvantaged group members to make advantaged group members feel accepted while also bringing up social injustices (for the effective use of this strategy by African Americans, see Dittmann et al., 2017). While we did not preregister a hypothesis regarding the effect of perceived illegitimacy on support for social change, this direct effect was clearly and robustly positive in all four studies. This supports the idea that discussing social injustices may be conducive to increasing support for social change, conditional on the assumption that discussing social injustices tends to increase perceived illegitimacy.

### **The Role of Perceived Legitimacy for Needs-Based Support for Change**

Based on the theoretical extension of the needs-based model to contexts of structural inequality (Shnabel & Ullrich, 2013; see also Hässler et al., 2019), we reasoned that members of disadvantaged and advantaged groups should experience the respective needs for empowerment and acceptance only to the extent that they perceive group disparities to be illegitimate. Consistent with our theorizing, the mean levels of perceived illegitimacy were so high that main effects of need satisfaction could be reliably observed. Furthermore, the hypothesis of an interaction effect between perceived illegitimacy and need satisfaction was consistently supported for advantaged groups (see Table 10). However, there was no evidence for the hypothesized interaction among LGBTIQ+ individuals (Study 2), and the

few interactions observed among ethnic minorities (Study 1) were in the opposite direction, suggesting that satisfaction of the need for empowerment matters less when perceived illegitimacy is high. Finally, the results for the hypothesized three-way interaction between intergroup contact, need satisfaction and perceived illegitimacy were inconsistent between disadvantaged groups and inconclusive (i.e., positive and negative) for advantaged groups.

Nevertheless, the moderating role of perceived illegitimacy should not easily be dismissed. An in-depth analysis of cross-country differences in living conditions and legal situations was beyond the scope of the present research but may well reveal systematic variation at the level of countries. For example, in some of these countries (e.g., Netherlands, Spain) LGBTIQ+ individuals are able to marry and enjoy far-reaching legal protections, whereas in others (e.g., Hungary, Poland) they face serious discrimination and hate crimes, and even (e.g. in Russia) “anti-homosexual propaganda laws” that criminalizes LGBTIQ+ events held in public spaces (Mendos, 2019). These differences are likely to affect perceived illegitimacy of group disparities among both the disadvantaged and the advantaged (as legitimacy perceptions may be higher in societies with institutionalized discrimination, as opposed to societies that formally endorse egalitarianism). For the analyses presented in this article, we controlled for between-countries differences by using residualized items, which allowed us to test our hypotheses across these heterogeneous contexts. Nonetheless, future research should investigate whether perceived illegitimacy moderates the effects of need satisfaction at the level of cultures, where culture is understood psychologically as a “system of shared meaning that embeds individuals in social structure” (Van Zomeren & Louis, 2017, p. 281).

### **Potential for Theoretical Integration with Models of Collective Action**

At the theoretical level, we hope that the present research will lay the basis for a better integration between the literatures on collective action on the one hand, and intergroup

contact on the other. Just as intergroup contact is not considered as a causal antecedent in models of collective action (e.g., Van Zomeren et al., 2008), research on intergroup contact - including the present research - does not typically include established predictors of collective action, the most prominent of which are identification, efficacy, and anger. Yet there is room for synthesis between these two bodies of work. First of all, intergroup contact (as compared to interacting with one's ingroup members) might increase identification with a common, superordinate group (Dovidio et al., 2012), which may result in a weaker ingroup identification (e.g., Wright & Lubensky, 2009). Ingroup identification, in turn, is a key predictor of engagement in collective action as a means of improving one's group's position or treatment (Van Zomeren et al., 2008).

Besides exploring the link between intergroup contact and predictors of collective action in general, it may be interesting to explore the link between these predictors and satisfaction of psychological needs within intergroup contact. In particular, it is possible that empowering contact increases disadvantaged group members' feeling of pride and perceived efficacy, which lead to engagement in collective action (Britt, & Heise, 2000; Mummendey et al., 1999; Simon & Klandermans, 2001; Van Zomeren, 2019; Wright et al., 1990). It is also possible that intergroup contact, when it is experienced as accepting, leads to reduced support for change among disadvantaged group members because it increases false expectations of equal treatment (Saguy et al., 2009), while reducing awareness of structural inequalities, feelings of injustice, and anger about disparities (e.g., Carter et al., 2019; Dixon et al., 2007; Wright & Lubensky, 2009; Van Zomeren, 2019), which are key predictors of engagement in protest against social inequalities (Van Stekelenburg & Klandermans, 2013; Van Zomeren et al., 2008; Jost et al., 2017).

As for advantaged group members, feeling moral outrage is essential for their engagement in collective action (Van Zomeren et al., 2011). However, these feelings may be

overwhelming if they threaten their ingroup's positive moral identity (e.g., Lowery et al., 2007). Possibly, experiencing moral and social acceptance by disadvantaged group members, or learning that disadvantaged group members are interested in what advantaged group members have to say, can attenuate this (otherwise overwhelming) threat—allowing advantaged group members to feel moral outrage about the existing social arrangements, yet without feeling rejected and condemned at the personal or group level (see Unzueta & Lowery, 2008, for the importance of maintaining positive identity for advantaged group members' ability to acknowledge group-based injustice). In sum, it may be valuable to further explore the links between intergroup contact, need satisfaction, collective action and predictors suggested by other theoretical accounts of (resistance to) social change (e.g., Jost et al., 2017; Van Zomeren et al., 2008), which may possibly offer a unified framework for understanding these phenomena.

### **Limitations, Implications, and Future Directions**

A main limitation of the present research is that its correlational design hinders causal conclusions. While the proposed direction of causality (i.e., from intergroup contact to support for equality) was guided by previous theorizing and research, future research would benefit from experimental and longitudinal designs to test and strengthen causal inference. A second limitation is that, due to our wish to draw general conclusions about the relations between intergroup contact, need satisfaction, and support for social change, we combined data across countries. Future research would benefit from assessing factors that might account for between-country differences. For example, the positive effects of intergroup contact may reverse when intergroup relations are characterized by high tension (see Paluck, 2010). A third limitation is that four out of five measures of support for social change assessed intentions rather than actual behavior. While intentions are reliable predictors of actual support for social change (Tausch et al., 2011), particularly voting intentions (Van de

Vyver et al., 2018), actual support might sometimes be lower (see also the intention-implementation-gap; Dixon et al., 2007).

Challenges may arise in implementing the main “recommendation” derived from the present research, namely that if the goal is to promote change toward equality, intergroup contact should empower the disadvantaged group. In practice, advantaged group members may not spontaneously provide this kind of intergroup contact, for two reasons. First, they may focus on promoting the satisfaction of their own need for acceptance, by investing effort in being nice in order to be liked by disadvantaged group members (Bergsieker et al., 2010) or by diverting attention to commonalities between the groups in order to protect their ingroup’s moral image (Knowles et al., 2014). Second, they may be motivated to maintain the status quo (Saguy & Kteily, 2014), a goal that is incompatible with empowering the disadvantaged group. Moreover, initiating discussion about group differences (e.g., Saguy et al., 2008) might lead to heightened threat perceptions, anxiety, outgroup avoidance (MacInnis & Page-Gould, 2015), and even disruptive behavior (Maoz, 2011) among advantaged group members. Negative, defensive responses to attempts to empower disadvantaged group members are likely to be particularly pronounced among advantaged group members who perceive group disparities as legitimate (e.g., Hässler et al., 2019) and may ultimately discourage support for social change.

Due to these psychological obstacles, a certain threshold of intergroup contact that affords acceptance, in which outgroup members are viewed as potential friends or allies, might be needed before intergroup contact can address the empowerment needs of the disadvantaged. Otherwise, empowering contact might unintentionally foster rather than reduce intergroup bias (MacInnis & Hodson, 2019; Vezzali et al., 2017). While this two-staged process may not always occur in spontaneous intergroup contact, structured intergroup contact interventions may aim to achieve it. For example, the mixed-model of contact

interventions (Maoz, 2011), which first emphasize commonalities and then gradually switch the focus to differences, power-relations, and inequalities, may be a powerful tool to address the differential needs of both groups and increase support for social change (see, for example, Shani & Boehnke, 2017).

## **Conclusion**

Heeding calls for a more rigorous integration of intergroup contact research and work on support for social change (Van Zomeren, 2019), the present research offered a systematic, theory-driven examination of how need satisfaction can make the seemingly contradicting goals of social harmony and social justice less incompatible. Our theoretical framework allowed us to generate predictions about both disadvantaged (Studies 1 and 2) and advantaged (Studies 3 and 4) groups rather than solely on one side of the equation. Our main finding is that, among disadvantaged group members, empowering contact (but not accepting contact) is related to more support for social change, whereas for advantaged group members, both accepting and empowering contact are related to more support for social change.

The results of this comprehensive study imply that reaching social harmony and social change may in fact be compatible if disadvantaged groups are empowered during intergroup encounters. This implies that structured contact interventions that focus not only on fostering social cohesion, but also empower members of disadvantaged groups and raise awareness of existing inequalities, can build bridges between social groups and help to promote greater social justice. We believe that the present research provides much needed empirical evidence to guide researchers as well as practitioners, such as educators and group facilitators, who design and engage in intergroup contact interventions.



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